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A highly productive economy creating value added for all

As a result of measures to stabilise the economy, the gradual strengthening of the economic cycle and an improvement in competitiveness, 2016 marked the start of a narrowing of Slovenia's development gap with the EU average, which had widened during the crisis. The gap is largely a consequence of the relative low productivity of the Slovenian economy, which has been hovering at about a fifth below the EU average since it plunged during the crisis. It took until 2017 before productivity growth accelerated to a level which makes it possible to catch up with more developed countries. Against the backdrop of a positive impact of cyclical factors (robust demand), some structural components of productivity growth have improved as well (lower corporate leverage, improved allocation of production factors and increased inflows of foreign direct investments). Over a longer time horizon, the composition of exports has also improved and the integration of companies in global value chains has increased significantly. On the other hand, in research and development, innovation, and digitalisation, which are key long-term factors of productivity growth, changes in recent years have been modest. This has considerably limited the potential for a more permanent acceleration of productivity growth and hence the opportunity to lift the population's living standard.

1.1 Economic stability

■ Economic Stability (development goal No. 5)

The aim is to secure economic stability, which is a key precondition for bridging the gap to more developed countries and increasing the quality of life for all. The basis of economic stability is a well-performing economy which maintains key macroeconomic balances. The achievement and preservation thereof require appropriate economic policy action throughout the economic cycle, long-term sustainability of public finances, a stable and competitive financial sector, and balanced regional development. With regard to economic stability, SDS 2030 also highlights competitiveness and innovation along with sustainable and inclusive aspects of economic development; these are dealt with in depth in other SDS development goals, namely goals 6 (competitiveness and innovation), 3 and 7 (inclusive development), and 8 and 9 (sustainable development).

■ SDS 2030 performance indicator for development goal 5:

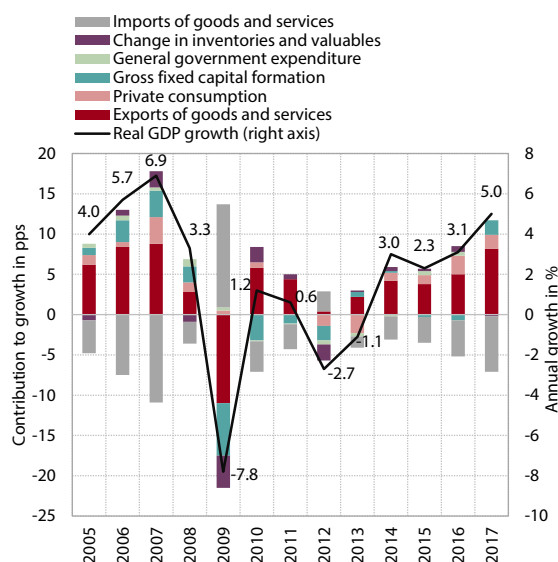
| | Latest value | | Target value for 2030 |
|--|--------------|-------------|-----------------------|
| | Slovenia | EU average | |
| GDP per capita (in PPS), index EU=100 | 83 (2016) | 100 (2016) | 100 |
| General government debt, as a % of GDP | 73.6 (2017) | 84.8 (2016) | 60 |

The fairly large gap in economic development relative to the EU average did not start narrowing until 2016. The gap in economic development measured in terms of GDP per capita in purchasing power standards widened by 8 pps during the crisis and it took until 2016 for the first minor improvement to be recorded. A more pronounced decline in employment was the main driving force behind the widening gap post-2008. The level of employment remains above the EU average, but the gap has been narrowing. The productivity gap had not deepened quite as much during the crisis, but productivity remains well below the EU average (see Section 1.2) and is therefore the key aspect that needs to be strengthened if Slovenia is to bridge the development gap at a faster pace.

Following the double-dip recession, the economic situation has been improving since 2014, but it took until early 2017 before gross domestic product climbed back to its pre-crisis level. It was not until 2014 that Slovenia’s GDP growth returned to outpacing the euro area average, but even then it was still lower than in the majority of new Member States with the exception of 2017, when it reached 5%, the fastest rate since 2007. Foreign demand, coupled with improved competitiveness of exporters (see Section 1.2) and their favourable sectoral structure, facilitated a relatively rapid growth in exports, in particular after 2013. Domestically, meanwhile, uncertainty decreased significantly in this period on the back of economic policy measures, in particular the restructuring of the banking system and the gradual fulfilment of fiscal commitments, which improved Slovenia’s standing on financial markets. Consequently, economic growth has become more broad-based. Exports remain the driving force of economic growth, but the impact of domestic consumption has increased as well. Household

consumption has been growing since the end of 2013, buoyed by favourable labour market trends and high consumer confidence. In particular since 2017, gross fixed capital formation has also increased at a steadier pace, having in previous years fluctuated significantly due to the dynamics of the drawing of EU funds at the end of the multi-annual financial framework. Investments in equipment and machinery have been growing since 2014, and in 2016 housing investments started to pick up as well, having declined by almost 60% during the crisis.

■ Figure 2: Structure of GDP growth, Slovenia



Source: SI-STAT Data Portal – National Accounts, 2018.

Following a sharp contraction during the crisis, employment has risen significantly since, but several factors, including structural ones, have restrained wage growth.¹ The rapid rebound in employment was driven by hiring across all sectors in the favourable growth environment. Despite rapid acceleration of economic activity, better business results and the decline in unemployment in recent years, wage growth has nevertheless remained subdued, as it has elsewhere in the EU.² We believe the reasons for this include a more moderate downward adjustment of wages during the crisis, the absence of major price pressures, moderate productivity growth and more robust hiring in industries with relatively low wage levels. Additionally, wage growth has been held back by an increased share of temporary and part-time jobs and the re-employment of the long-term unemployed, who are often entering the labour market with lower wages than they had before their loss of employment.

Some indicators show that leveraging the favourable trends, the Slovenian economy is already approaching the peak of its economic cycle. This is evident from the positive output gap, in particular the contribution of labour and total factor productivity, which are respectively above and close to pre-crisis levels. The contribution of capital, on the other hand, remains significantly lower owing to the decline in investments. As a result, potential GDP growth in 2017 was already 1.0 pp below pre-crisis rates. Given the volatility of the output gap, which is a fairly unstable macroeconomic indicator because of how it is calculated,³ the estimate has been supplemented with an overview of other indicators in order to arrive at a better estimate of the current position in the economic cycle. They indicate that in certain segments positive trends have only just started to strengthen, while in others trends are already more pronounced, but our estimate is that they remain within sustainable frameworks.

Financial indicators have been rising at a subdued pace, unlike in 2006 and 2007, when economic growth was significantly above potential and trends in these areas led to a collapse of macroeconomic balances, which reduced the resilience of the economy to shocks; after the outbreak of the financial crisis, these imbalances deepened further. Banks' lending activity, especially the scope of corporate lending, did not stop contracting until 2017 and inflation has hovered between 1% and 2% in a low interest rate environment. Corporate leverage, which peaked at the start of the crisis, has dropped to the level it was before it accelerated in 2015, and companies' ability to repay debt has improved substantially. The current

account balance of payments – the saving–investment gap – which was deeply in negative territory in the pre-crisis period, has been in surplus since 2012 due to a low level of investments⁴ and substantial deleveraging of commercial banks abroad and has been reaching record levels (6.4% in 2017).

In some segments, trends characteristic of the positive part of the economic cycle have strengthened significantly, for example on the real estate market, in some indicators of labour shortage and in capacity utilisation. With the exception of the last, these trends have not yet exceeded long-term averages, however, and are not at levels that would destabilise the economy. In the labour market in particular, the availability of labour is increasingly dependent not only on cyclical factors but also on demographic and structural factors (see Section 3.3); in some industries, meanwhile, there is already a shortage of labour. The match between supply and demand of labour currently available on the labour market remains lower than before the crisis (i.e. the Beveridge curve has moved right). Several indicators of the availability of potential labour are approaching very low levels. Capacity utilisation in manufacturing and services is at historically high rates, which affects the growth of investments in machinery and equipment; these are still more than 20% below crisis levels.

Figure 3: Beveridge curve, Slovenia



Source: Eurostat Portal Page – European and National Indicators for Short-Term Analysis - Business and Consumer Surveys, 2018; calculations by IMAD.

¹ One of the structural causes of moderate wage growth is low productivity growth. In an effort to remain competitive, companies are striving to prevent wage growth from outpacing productivity growth. Moreover, as economic activity recovered in recent years, the hiring of workers with relatively low gross wages has accelerated, which has dampened the overall pace of average wage growth.

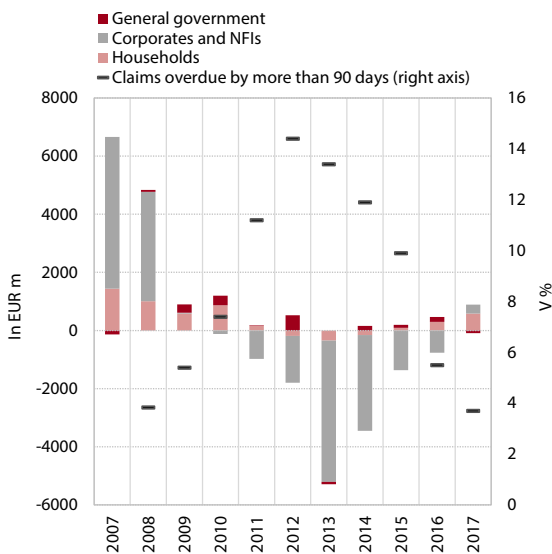
² Labour Market and Wage Developments in Europe 2017 (EC), 2017.

³ Economic Issues 2016 (IMAD), 2016.

⁴ Due to a sharp decline in the early years of the crisis (2009–2012), total investments were almost 40% below the average of 2008.

The situation in the banking system has improved significantly post-2013, largely due to a sizeable bank recapitalisation at the end of 2013 and the transfer of a large share of non-performing loans from banks to BAMC. The quality of bank assets has thus improved strongly relative to 2013 and the favourable economic circumstances have contributed to an improvement in creditors' ratings. Banks' business results have improved significantly as well, although mostly as a result of the release of provisions and impairments. Net interest revenue continues to contract, although the rate of contraction slowed in 2017. Stabilisation of banks has been additionally supported by the introduction and strengthening of macroprudential supervision,⁵ which assesses risks to financial stability and adopts measures to prevent or mitigate risk. Having conducted substantial deleveraging, banks have significantly reduced foreign exposure (by EUR 16 bn from 2008). Due to low interest rates, however, only overnight deposits have been growing in the segment of non-bank deposits, the main source of bank financing, which increases the maturity mismatch between bank assets and liabilities. In 2017 total lending activity increased for the first time since 2010. Loans to households grew for the third year in a row, but corporate loans increased for the first time in six years. Bank sources remain a key component of corporate financing, with companies therefore sensitive to a potential tightening of lending, which could in turn have an impact on the quality of bank balance sheets. Nevertheless, compared to the pre-crisis years, companies, buoyed by favourable business results, have started to increasingly rely on own sources of financing⁶

Figure 4: Annual growth of loans to domestic non-banking sectors and share of claims overdue by more than 90 days, Slovenia



Source: Bank of Slovenia; calculations by IMAD.

⁵ Introduced in 2013 with the Macro-prudential Supervision of the Financial System Act (Official Gazette of the RS, No. 100/2013).

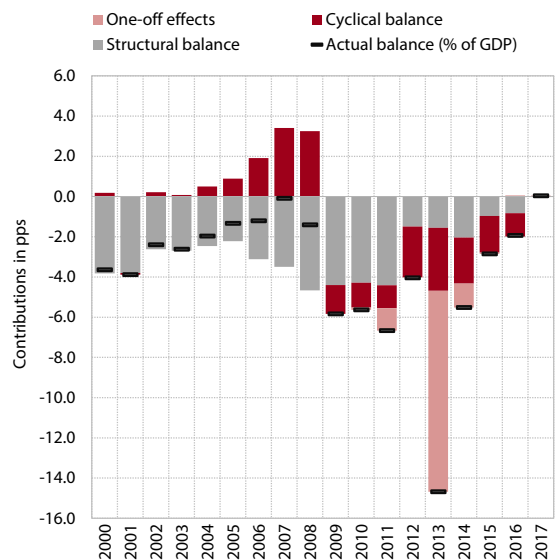
⁶ In 2014–2017 deposits by non-financial companies rose by roughly half, to EUR 6.4 billion.

for current production and investments. The issuing of debt securities as a source of financing has also picked up slightly, though it remains modest.

Measured by development indicators, the financial system still falls far short of the EU average. Banks' total assets (as a % of GDP) are significantly below the EU average, having only started to rebound in 2017 due to an increase in overall lending. The gap is narrowest in insurance, in general the segment least affected by the financial crisis, though even here the gap in life insurance remains wide. The capital market remains poorly developed: treasury bonds account for the bulk of the market capitalisation of issues traded on the Ljubljana Stock Exchange, with the number of listed stocks and their market capitalisation modest and lower than before the crisis.

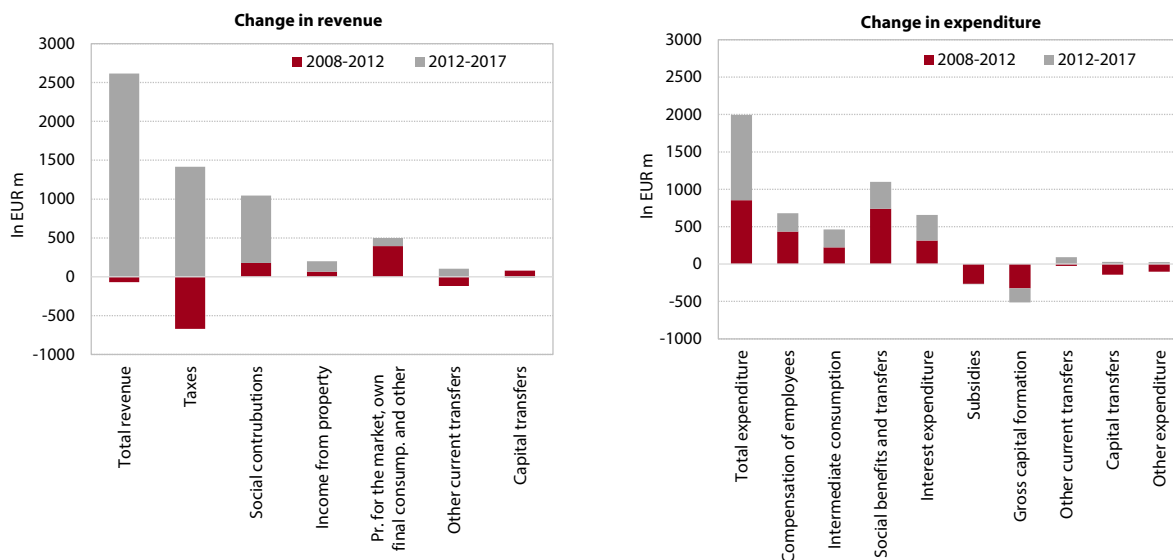
The general government balance has improved substantially in recent years. The general government deficit declined steadily after peaking in 2013 – including due to one-off factors – and in 2017 the fiscal position was balanced as a result of improved macroeconomic circumstances following the stabilisation of the banking sector, the recovery of domestic and foreign confidence, and the adoption of measures to increase revenue and restrain spending. Throughout the period since the start of the economic crisis, the containment of overall expenditure was to a significant degree the result of a substantial contraction of flexible expenditure, i.e. investments and subsidies.⁷ Not only the cyclical, but

Figure 5: Balance and structural balance of the general government sector, Slovenia



Source: SI-STAT Data Portal – National Accounts – General Government Accounts - Basic Aggregates of the General Government, 2018.

⁷ In 2017 investments and subsidies were EUR 783.5 million lower than in 2008, with the uptick in the intervening period (2013 and 2014) largely a result of the completion of the drawing of EU funds from the previous multi-year financial framework.

Figure 6: Change in general government revenue and expenditure in different periods, Slovenia

Source: SI-STAT Data Portal – National Accounts – General Government Accounts – Basic Aggregates of the General Government, 2018.
 Note: The columns show the difference in revenue or expenditure (in EUR) between 2017 and 2008 divided into two periods.

also the structural deficit has dropped since 2012; IMAD estimates that it was close to balance last year and hence at its lowest level to date.

Following brisk growth until 2015, general government debt as a share of GDP did not start declining until 2016 and remains at a high level.

General government debt surged from 2008 to 2015 (from 21.8% of GDP to 82.6% of GDP), but in the last two years it dropped to reach 73.6% of GDP in 2017. The contributing factors include an improvement in the primary balance (surplus) and economic growth, which offset the negative impact of interest expenditure on debt accrual in the last two years, eliminating the unfavourable “snowball effect” (see Indicator 1.2). The decline in debt payments in the last two years is additionally a reflection of active debt management in favourable borrowing conditions, which also had the effect of extending debt maturity. Nevertheless, debt remains high and restricts the fiscal space to cope with possible shocks; absent changes in the medium and long term, its sustainability will come under pressure due to swelling age-related expenditure.

Better economic conditions and a stronger impact of demographic change over the medium term require an adjustment of measures in order to continue sustainably improving the general government balance and to reduce debt. Under the adopted budget documents for 2018 and 2019, several more austerity measures will be relaxed, which means that the majority of fiscally significant measures in place in recent years to stem expenditure growth will have been removed. The capacity of the heretofore guiding force of consolidation, which has restrained expenditure growth with the

phasing out of austerity measures, will thus have been exhausted. While the reduction or restraining of certain forms of flexible expenditure, in particular investments,⁸ has so far had a significant impact on fiscal consolidation, the possibilities for them to remain restrained in the future will be limited. A continued sustainable improvement of the fiscal position in circumstances where Slovenia has transitioned into positive output gap⁹ territory according to most estimates of the state of the economic cycle will therefore require the adoption of supplementary systemic measures. Such measures could involve restructuring expenditure and revenue in line with the set priorities and the streamlining of expenditure based on in-depth reviews. These measures will also have to consider the demographic trends and their impacts on social protection systems. That these are not sustainable in the long term is also indicated by the latest EC projections of age-related expenditure (see also Section 3.1.2).

Broader economic policy measures also have an impact on fiscal trends, chief among them the management of state-owned assets, which may affect returns and reduce the risk of recapitalisation with public funds. A coordinated selection of measures is also important as a means of increasing long-term economic growth and hence providing a source of growth for general government revenue. For Slovenia,

⁸ In 2017 investments by the general government reached their lowest nominal level in a decade, and as a share of GDP their level was the lowest on record (2.9% of GDP).

⁹ In accordance with the requirements of the Growth and Stability Pact, this means reducing the structural balance by at least 0.6 pps annually; if the positive output gap exceeds 1.5% of potential GDP, the structural balance should improve by 1 pp.

the most important measures include the strengthening of innovation ability, an efficient institutional framework for the private sector, appropriate adjustment of the educational system and the provision of qualified labour (see Sections 1.2, 2.1 and 5.1).

Just like the economy overall, the regions suffered severe economic hardship post-2008, but since 2013 the situation has been improving. Regional differences, which are not wide by international standards, narrowed further in the crisis, because in relative terms economic activity declined the most in the most developed regions, which also account for the highest share of GDP. One probable reason why economic activity declined faster is that economic activities in the most developed regions were more exposed to both internal and external shocks.

Temporary endogenous regional policy measures¹⁰ were another contributor to rising value added per employee in individual regions. In areas covered by temporary measures, growth outpaced the Slovenian average in both companies and sole proprietors, although this was also affected by the above-average reduction in the number of employees and high rate of bankruptcies in these regions. European cohesion policy funds¹¹ have also contributed to better results and they continue to represent crucial development funds in the current programming period.¹² A more realistic assessment of the long-term effects across all development support programmes will be possible after they have been completed.

Most of the regions with the highest development risk indices are in north-eastern Slovenia. The synthetic index of development risk¹³ is highest in the Pomurje and lowest in the Osrednjeslovenska region. Compared to 2014, when the first calculations¹⁴ were made for

the entire programming period 2014–2020, the index dropped in Koroška, Podravska, Goriška and Savinjska. In most other regions it increased, most notably in Posavska, which is associated with a deterioration in the areas of investment, disposable income, youth unemployment and the share of protected areas.¹⁵

¹⁰ To combat high unemployment, an emergency law for Pomurje was adopted first (payments until the end of 2015), followed by the adoption of temporary development support measures for Pokolpje, Maribor and its surroundings, and the municipalities of Hrastnik, Radeče and Trbovlje.

¹¹ Until the end of 2015, beneficiaries received payments from the national budget totalling EUR 4.3 billion; the highest payments were disbursed in Pomurje, at about EUR 4,000 per capita.

¹² According to EC estimates, cohesion policy funds contribute 4–6 pps to GDP growth in the largest beneficiaries. A euro of cohesion policy funds invested in 2007–2014 is supposed to contribute an additional 2.7 euro to GDP through 2023 (Ex-post evaluation of the ERDF and Cohesion Fund 2007–13 (EC), 2016).

¹³ The indicator is used for monitoring regional development and comprises the following sub-indicators: (1) GDP per capita, (2) gross value added per employee, (3) investments in fixed assets as a share of GDP, (4) registered youth unemployment rate for young people (15–29 years), (5) the employment rate (20–64 years), (6) the proportion of the population with tertiary education (25–64 years), (7) gross domestic expenditure on R&D as a share of GDP, (8) the proportion of wastewater treated with secondary and tertiary treatment, (9) the proportion of nature protection areas in the region, (10) estimated damage caused by natural disasters as a share of GDP, (11) the registered unemployment rate, (12) population ageing index, (13) disposable income per capita, and (14) population density. On the basis of the DRI, the regions are ranked according to level of development in the programming period 2014–2020 (Rules, 2014).

¹⁴ The index was introduced into regional policy because per capita GDP is too narrow to capture the multi-dimensional nature of regional

development.

¹⁵ Protected areas include protected natural areas, Natura 2000 areas and areas meeting the criteria for Natura 2000 sites (ecologically important areas).

1.2 A competitive and socially responsible business and research sector

A competitive and socially responsible business and research sector (Development goal 6)

The aim is to raise competitiveness by creating products and services with high value added and to strengthen the social responsibility of companies and research organisations. The creation of high value added will be supported by innovation, basic and applied research, promotion of creativity, and the exploitation of digital potentials and every opportunity afforded by the fourth industrial revolution. Other factors listed in SDS 2030 as relevant in efforts to increase value added include internationalisation of companies and research institutions and the provision of a supportive and predictable environment for business and investments that accommodates the needs of small enterprises. Achievement of the goal will also be contingent on suitable human resources, which the SDS deals with in development goal 2.

SDS 2030 performance indicator for development goal 6:

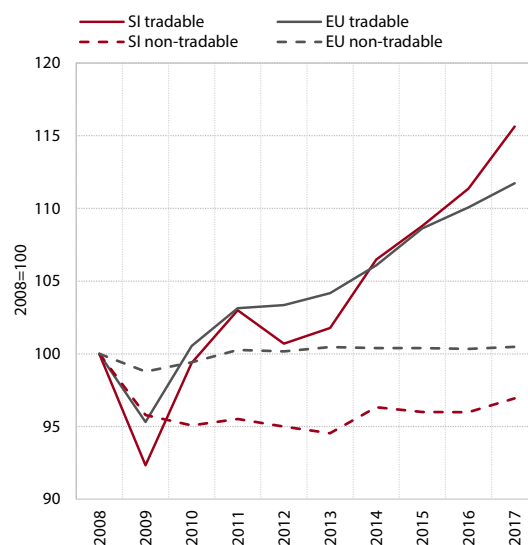
| | Latest value | | Target value for 2030 |
|---|--|------------|---|
| | Slovenia | EU average | |
| Labour productivity , index EU=100 | 81 (2016) | 100 (2016) | 95 |
| European Innovation Index , index EU 2010=100, i.e. ranking among leading innovators | 98 (2016) | 102 (2016) | >120 |
| Digital Economy and Society Index , ranking among EU members | 17th place overall (2017) 7th–23rd place (across five components) | - | Ranking in top third of EU countries according to all five main components of the index |

1.2.1 Competitiveness of the business sector

The chief means to improve the competitiveness of the business sector in the long term is to raise productivity, which is about a fifth lower than in the EU on average. GDP per employee, the measure of productivity across the entire economy, amounted to 81% of the EU average from 2014 to 2016 (adjusted for differences in purchasing power). This is 2 pps above the trough reached during the crisis but 3 pps below the value achieved prior to its start. In the first years of the recovery, productivity growth was weak, and Slovenia was not able to bridge the gap to developed countries at a faster pace. There are, however, significant differences between the non-tradable and tradable sectors of the economy. The productivity of the tradable sector increased in 2009–2015 at a similar pace to that in the EU on average, whereupon it accelerated and was about 15% above the levels achieved before the crisis in 2017. Productivity growth in the non-tradable sector, on the other hand, lagged behind EU trends and by 2017 was still lower than before the crisis; the majority of non-tradable activities remained below the pre-crisis level in terms of productivity.

Post-crisis productivity growth was affected by both cyclical and certain structural factors; the impact of these has gradually waned. The recovery of demand was quite uneven in the post-crisis period. Whereas foreign demand dropped off sharply during the crisis and accelerated rapidly thereafter, the recovery of domestic

Figure 7: Productivity (value added per employee) of tradable and non-tradable sectors

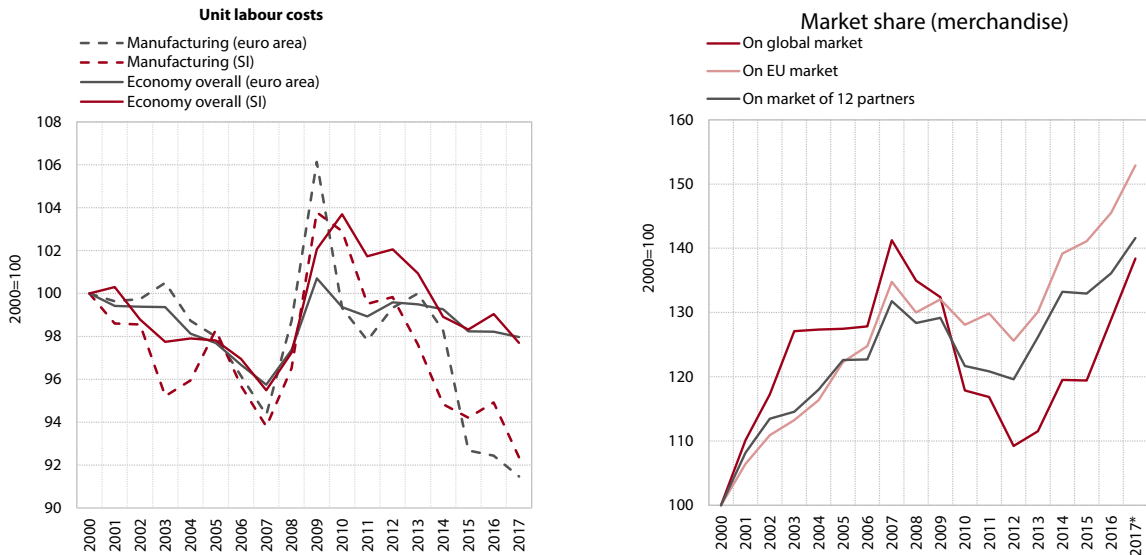


Source: Eurostat Portal Page – Economy and Finance, 2018; calculations by IMAD.

Note: The tradable sector includes the activities of agriculture (A), industry (B–E) trade, transport and accommodation (G–I), and information and communication (J).

demand was slow and weak; indeed it did not start to pick up until 2016, which goes some way to explaining the significant differences in productivity between the tradable and non-tradable sectors. In addition to the cyclical impact of demand, productivity growth and, in to

Figure 8: Unit labour costs (left) and Slovenia's market share on foreign markets (right)



Sources: SURS, Eurostat, UN Comtrade, WIIW, WTO, 2018; calculations by IMAD.
Note: *Provisional data.

some extent, the differences between the tradable and non-tradable sectors are due to certain structural factors, associated particularly with the deteriorating allocation of production factors¹⁶ and high corporate leverage prior to 2008. Favourable economic conditions and easy accessibility of financing sources prior to the crisis had made it possible to sustain even poorly performing and unproductive companies and to invest fresh capital into less productive purposes. Moreover, many companies were overleveraged as the crisis erupted. During the crisis, these segments of the economy were hit the worst, which deepened the decline in productivity and slowed its recovery. The impact of these cyclical and structural factors has been gradually declining, and productivity growth outpaced the EU average once again in 2017. Nevertheless, the currently favourable trends are not yet sufficient to raise productivity more sustainably in order to bridge the gap to the EU average, which is one of the SDS goals. The main challenges to achieving the goal include improving long-term factors of value added growth associated with knowledge, innovation, R&D, digitalisation and institutional efficiency (for more on these factors, see Section 1.2.2 and Chapters 2 and 5); in the short term, capital deepening will also be required.

Cost factors have exerted a positive impact on the competitive position of the economy in recent years, especially of the tradable sector. When the crisis erupted, unit labour costs rose at a significantly faster pace than in the euro area as a whole. Having then dropped relatively fast, they have been broadly in line with the euro area since 2014. The favourable trends are underpinned in particular by the tradable sector,

especially manufacturing, where stronger productivity facilitates the continued reduction of unit labour costs. In the tradable sector the recent trends in Slovenia have indeed been favourable even compared to Eastern European rivals; the latter have lower unit labour costs, but labour costs have been rising rapidly in the majority of these countries since 2015 (see Indicator 1.13).

Stronger productivity and improved cost-effectiveness of the tradable sector exerted a favourable impact on export results. Exports have grown through most of the post-crisis period on the back of robust external demand, and the market share of Slovenian exporters has risen since 2012, which shows that they have improved their competitive position on foreign markets too. Slovenia ranked in the top third of EU countries by growth of merchandise export market share on the global market in 2013–2016, but due to a steeper decline in the crisis the market share is yet to exceed pre-crisis levels, unlike in other new Member States. Slovenia has improved its position on the majority of its traditional export markets since 2013, with the total market share in the most important trading partners already achieving pre-crisis levels. Brisk growth was also recorded on some markets that are less important for Slovenian exports. This indicates that the regional dispersion of exports has increased, which is desirable given the country's strong export reliance on a handful of EU markets: although the strong focus on a few markets has a positive impact on aggregate market share and exports in times when these markets are growing fast (a structural effect), such an export structure has a negative

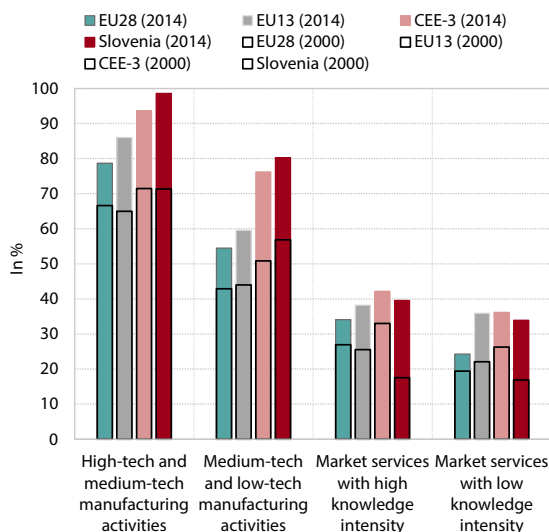
¹⁶ Economic Issues 2017 (IMAD), 2017.

impact¹⁷ during periods when demand on these markets contracts sharply (as it did during the last crisis). Services exports have grown at a brisk pace in recent years, but only exporters of transport, construction and ICT services¹⁸ have expanded their market shares in the EU since 2010.¹⁹

The share of technologically more intensive products has increased in merchandise exports and knowledge-based services account for an increasing share of services exports. These are products and services which require greater use of research and knowledge and which typically generate higher value added. Following brisk growth both before and during the crisis, high-tech products have accounted for about a fifth of total merchandise exports in recent years, which is above the EU average and at a similar level to that in Eastern European countries where high-tech-intensive products represent a relatively high share of exports.²⁰ Compared to the EU average, Slovenia stands out in terms of the high share of medium-tech products, but their share has declined slightly since the crisis and is significantly lower than in Eastern European countries, which export more vehicles and vehicle spare parts than Slovenia. Travel and transport services dominate services exports; the share of knowledge-based services has been increasing fast, although it remains far below the EU average (see Indicator 1.14).

As exports grew at a rapid pace, the internationalisation of the Slovenian economy and its integration into global value chains increased substantially. Internationalisation, either via foreign trade flows (i.e. exports and imports) or through integration in global value chains, is an important driver of value added and competitiveness since it facilitates the transfer of technology and know-how and the reduction of costs. Slovenia ranks as a small open economy with an above-average and rapidly widening share of exports in GDP. The pace of trade integration declined in the first years following the start of the crisis, but in 2013–2016 Slovenia was among the top six EU countries and ahead of the majority of new Member States in terms of growth of exports as a share of GDP. Trade integration is also high according to exports of value added as a share of total value added. This is particularly true in manufacturing, but in the analysed period significant headway was also achieved in the exports of value added of services. Participation in global value chains (GVCs) is also improving rapidly, in particular integration of domestic value added in foreign exports (upstream integration in GVCs): the latest data (for 2014) indicate it was above the EU average and the average of new Member States; in 2000 it was slightly behind both. The

Figure 9: Share of export of value added in total value added

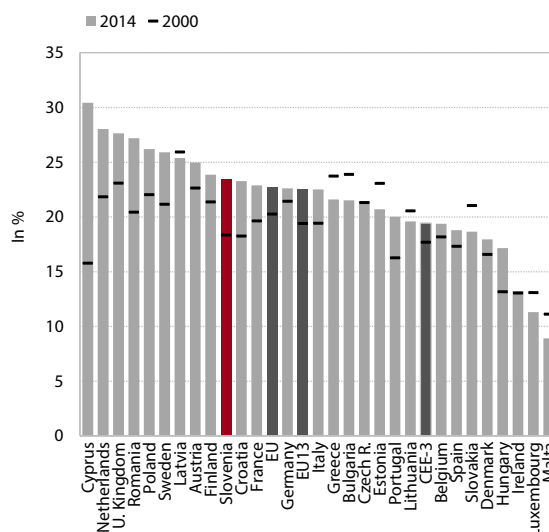


Source: IMAD calculations based on WIOD database (Release 2016).

Notes: EU13 includes new Member States which joined the EU after 2004; CEE-3 includes Hungary, the Czech Republic and Slovakia.

Legend: High-tech and medium-tech manufacturing activities (sections 20 and 21 according to ISIC Rev. 4), machinery and equipment (26, 27 and 28), and transport equipment (29 and 30) (OECD STI Scoreboard, 2015). Market services include sections 45–82 according to ISIC Rev. 4, whereby market services with high knowledge intensity include ICT services (sections 58–63), finance and insurance (sections 64–66), and professional, scientific and technical services (sections 69–75). Other market services are designated as market services with low knowledge intensity (OECD STI Outlook, 2014).

Figure 10: Domestic value added in foreign exports as a share of domestic exports (forward linkages in GVC)



Source: IMAD calculations based on WIOD database (Release 2016).

Notes: GVCs – global value chains; EU13 includes new Member States which joined the EU after 2004; CEE-3 includes Hungary, the Czech Republic and Slovakia.

¹⁷ In 2008–2012 the effect of initial geographic structure contributed about 60% to the average annual decline of market share and about a fifth to the average annual growth in 2013.

¹⁸ Only activities with a significant share of overall services exports are included.

¹⁹ Data are available for 2010.

²⁰ Czech Republic, Slovakia and Hungary.

Box 1: Social responsibility of organisations

The social responsibility of organisations is becoming an increasingly important success factor in nations' sustainable development. The concept of social responsibility includes multiple aspects of the performance of companies and other organisations, such as concern for employees, promotion of the protection of human rights and fundamental liberties, environment protection, and prevention of corruption. Countries use a variety of approaches in creating, implementing and developing this concept. In general, their approaches differ by whether they treat social responsibility narrowly or broadly. Broader treatment encompasses general responsibility of organisations to the natural and social environment; narrow treatment involves responsibility to stakeholders (customers, business partners, interest groups, shareholders, etc.). Since sustainable and socially responsible business practice has a significant impact on society, the economy and the environment, organisations' social responsibility has over the past decade become a significant element of national and international policy programmes of EU countries (e.g. Europe 2020, Implementation of the Growth and Jobs Partnership, 2006, reformed Strategy on Corporate Social Responsibility 2011–2014) (Močnik et al, 2017).

In the absence of a strategic national framework, the promotion of social responsibility in Slovenia is dispersed among multiple stakeholders. Slovenia is in a small group of EU countries without an officially adopted national social responsibility strategy. Nevertheless, an overview of trends in this field indicates deep commitment on the part of various stakeholders and an array of diverse activities carried out, for example by the Institute for the Development of Social Responsibility, Section for the Promotion of Social Responsibility, the Ekvilib Institute, and the Slovenian chapter of the UN Global Compact. The most widely used social responsibility standards in Slovenia are ISO 26000 and SA800 (both for social responsibility), ISO 14001 (environmental management), and OHSAS 18001 (an occupational health and safety management system). Some major companies report on sustainable development using the international benchmarks of the GRI (Global Reporting Initiative), which are globally the most widespread framework for reporting on economic, social and environmental impacts of organisations. Numerous awards and recognitions for progress in organisations' responsibility to society and the natural environment are additionally given out, and some institutions have developed products to promote social responsibility, e.g. the Family Friendly Company and Socially Responsible Company certificates (Ekvilib Institute).

Data that would make it possible to monitor the progress in social responsibility remains scarce. There are better data on certain aspects of social responsibility, such as treatment of the environment (see Indicator 1.19), but there are no sufficient indicators available for the entire scope of social responsibility to monitor progress in Slovenia and internationally. Individual surveys which investigate corporate social responsibility have determined that large companies tend to have a better planned and more targeted set of social responsibility activities than smaller firms, but unfortunately such studies mostly focus on major companies (Močnik et al, 2017).

share of foreign value added in domestic exports, an indicator of downstream integration in GVCs, is above the EU average but below the average of the new Member States.

Foreign direct investment (FDI), although traditionally low, has been increasing at a faster pace since 2014. Slovenia's inbound FDI, a means of integrating companies into the international environment and an opportunity to improve operating efficiency, remains among the lowest in the EU (see Indicator 1.15). Against the backdrop of the overall post-crisis increase in global investments, FDI inflows into Slovenia have increased since 2014, however. The favourable economic conditions in the international environment were not the only driver of the improvement, there being also multiple domestic contributing factors, i.e. (i) acceleration of privatisation and more intense sales of equity stakes in Slovenian companies; (ii) improvement of the economic situation and business expectations in Slovenia; (iii) improved government attitude to FDI; and (iv) more favourable labour market and cost trends compared to some other

new Member States which have already achieved low unemployment rates (labour shortages) and which have recently been registering rapid growth of unit labour costs. However, Slovenia is yet to improve certain key elements of the business environment measured by international institutions' (the World Bank, WEF and IMF) surveys among businesses, such as taxes and tax legislation, the length of administrative procedures, and labour legislation (see Section 5.1), all of which may affect businesses' decisions to enter the Slovenian market.

As the economy has recovered, the share of the population starting a business has risen, as has the number of high-growth enterprises. Entrepreneurial activity is an important factor of long-term productivity growth as it represents the potential to transfer knowledge and innovation into practice. At the same time, entrepreneurs are also the most important actors in translating new ideas into successful market innovations. The number of nascent and new companies (early-stage entrepreneurial activity) has been increasing since 2012 and in 2016–2017 far exceeded the pre-crisis

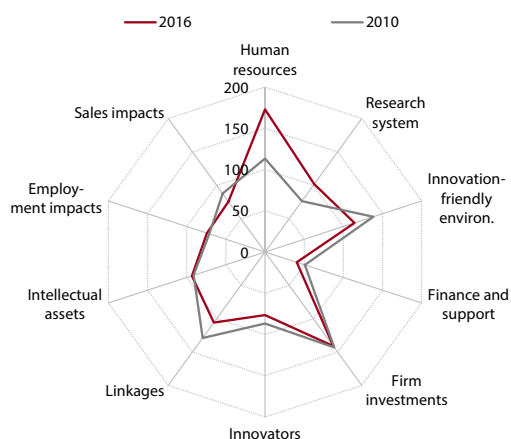
year 2007; for the first time since the crisis it is also now significantly above the EU average.²¹ Initially the increase was mostly necessity-driven, but in the last two years perceived business opportunities became the main driving force, which may represent a favourable starting point for the continued growth and development of these companies. Start-ups have also thrived in Slovenia in recent years, offering mostly digital-based innovative products and services that have high growth potential. The number of high-growth enterprises²² has likewise increased since 2015, but it remains low by international standards. Their number is increasing at the fastest rate in the tradable sector, the only activity where their share is slightly above the EU average being manufacturing.

Environmental responsibility as one of the forms of corporate citizenship is at a level similar to the EU average. The uptake of various forms of socially responsible practices is increasingly becoming an important instrument for the promotion of sustainable production and consumption while also improving the competitive edge of companies. In Slovenia the promotion of social responsibility of companies and other organisations is dispersed among multiple institutions, but in order to monitor progress in this field appropriate and internationally comparable data benchmarks should be established. These benchmarks are best developed in environmental responsibility, one of the segments of corporate responsibility (see Box 1). The prevalence of various environmental certificates demonstrating corporate environmental responsibility (see Indicator 1.19) is roughly on a par with the EU average, but in the most successful countries it is more than twice as high as in Slovenia.

1.2.2 Research, innovation and digital capabilities

In 2010–2016 Slovenia did not reduce its gap with the EU average in terms of the efficiency of the innovation system. Countries' capability to increase productivity and competitiveness is reflected in the efficiency of national innovation systems, which is measured in a synthetic way by the European Innovation Index (EII). The EII monitors the trends in EU countries in areas such as innovation environment, investments in R&D, innovation activity of companies and the effects of innovation. Among the 27 indicators included in the EII, Slovenia achieved above-average results in particular in human resources and corporate R&D investments, while a widening of the gap to the EU average was recorded in particular in financing, public sector support for innovation and the impact of innovations on sales (see Indicator 1.10). Weaknesses of the innovation system are also apparent in insufficient cooperation between

Figure 11: Slovenia's innovation performance by EII sub-areas compared to the EU (2010=100)



Source: European Innovation Scoreboard 2017, 2017.

stakeholders and lack of policy coordination. All this hampers the achievement of the relevant goal in SDS 2030, i.e. ranking in the group of leading innovators as measured by the EII.

Investment in R&D remains fairly high, though in recent years it has been scaled back significantly. R&D investment of the business sector has increased the most since the beginning of the crisis, as companies strived to enhance growth and competitiveness. To a certain extent, these developments were also a result of higher R&D financing from structural funds, which required co-financing by companies, and a positive impact of tax relief.²³ Since 2015, R&D investment of the business sector has been declining. In the public sector it had started to contract already after 2011 and declined by about EUR 115 million by 2016. In 2015 Slovenia had the lowest share of public funds in overall R&D spending (about 20%) among the EU Member States. In the best performing countries in terms of innovations, the share of public R&D funding is roughly 10 pps higher than in Slovenia. Public financing of R&D facilitates basic research and the development of human resources, which is a precondition for breakthrough innovations in cooperation with companies.²⁴ At the same time, providing a stable environment for R&D at public research institutions is key to generating new knowledge, which is essential for the international cooperation of these institutions, allowing them to keep up with the rapid progress of scientific and technological development.

²¹ Based on the GEM (Global Entrepreneurship Monitor) (GERA, 2018). The EU average comprises EU countries included in the GEM.

²² Companies with at least 10% growth in the number of employees over three years.

²³ After the increase in tax relief for R&D investments to 100% in 2012, the number of companies claiming tax relief rose from 515 in 2011 to 757 in 2015. In 2016 it decreased significantly to 630, but the total amount of the tax relief claimed, which represents a loss of corporate income tax revenue in those years, remained roughly the same according to Ministry of Finance data.

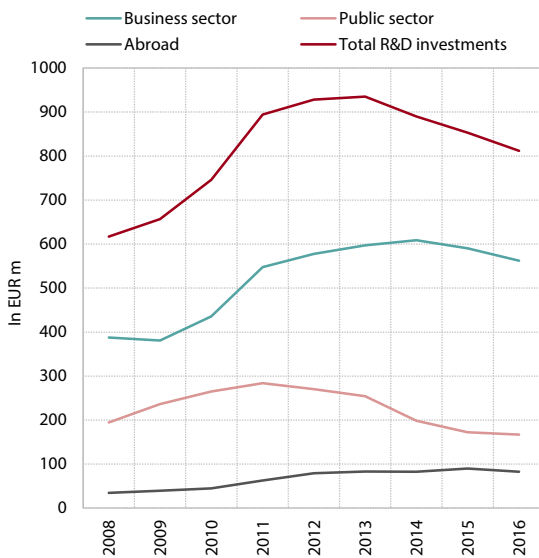
²⁴ The Economic Rationale for Public R&D Funding and Its Impact, 2017.

Table 1: Budget appropriations* for environment and energy as a share of total government budget appropriations for R&D

| In % | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|--------------------|------|------|------|------|------|------|------|------|------|
| Slovenia | | | | | | | | | |
| Environment | 3.51 | 2.27 | 3.27 | 3.36 | 2.98 | 3.10 | 3.30 | 6.21 | 4.99 |
| Energy | 1.11 | 1.58 | 1.99 | 3.59 | 2.79 | 2.90 | 3.08 | 2.63 | 2.97 |
| EU | | | | | | | | | |
| Environment | 2.87 | 2.80 | 2.69 | 2.62 | 2.62 | 2.54 | 2.48 | 2.68 | 2.35 |
| Energy | 3.75 | 3.64 | 3.88 | 3.88 | 3.84 | 4.27 | 4.07 | 4.11 | 4.00 |

Sources: Eurostat Portal Page – Science and Technology – Research and Development, 2018; SURS, 2017.

Note: *In accordance with OECD methodology (i.e. the Frascati Manual), this involves funds earmarked by the state for the implementation of R&D within the state and abroad, regardless of the implementing sector (OECD, 2015).

Figure 12: Investment in R&D, Slovenia

Source: SI-STAT Data Portal – Research, Development, Innovation, 2018.

The share of budget appropriations for R&D investments for environmental and energy purposes is relatively high by international standards, as is the share of companies introducing eco-innovations.

The share of budget appropriations for environmental and energy R&D investments is above the EU average and has been changing in line with overall public R&D spending dynamics. Unlike the EU, Slovenia allocates more for environmental research than for energy research. Awareness about the importance of a pristine environment is already high²⁵ in Slovenia, while the demand for energy research is expected to increase in the future in an effort to increase energy efficiency (see Indicators 4.2 and 4.4). A more holistic insight into countries' environmental innovation performance is provided by the Eco-Innovation Index,²⁶ according to

²⁵ Along with three other protected areas, Natura 2000 areas encompass around 60% of Slovenia's land area (Natura 2000 in figures, 2017).

²⁶ The Eco-Innovation Index comprises 16 indicators covering five areas: eco-innovation inputs, eco-innovation activities, eco-innovation outputs, resource efficiency outcomes and socio-economic outcomes (see Eco-Innovation Scoreboard 2016, 2017).

which Slovenia exceeded the EU average in 2016. The survey on innovation activity also shows that Slovenia is achieving good results in eco-innovation and is ranked among the three leading EU Member States. In 2012–2014 over 60% of innovation-active companies introduced eco-innovations for business reasons, these ranging from improving the image of the company and reducing energy, water and material costs to compliance with environmental regulations. The global environmental technology market offers significant opportunities²⁷ and represents a major challenge for the R&D activities of both public and business sectors and requires better cooperation between the two. Greater uptake of eco-innovations and environmental technologies among all actors can be improved with the effective implementation of green public procurement under a new EU initiative.²⁸

Progress in human resources for R&D constitutes a solid foundation for the strengthening of innovation capability, despite certain shortcomings.

In the decade between 2006 and 2016, the number of researchers²⁹ grew slightly faster than in the EU and their structure shifted even more in favour of science and technology,³⁰ which employed about 88% of all researchers in 2015, one of the highest shares among the Member States. Progress in terms of the gender structure of researchers has been much slower, however, with the share of female researchers increasing only marginally in this period. The business sector almost doubled the number of researchers in 2006–2016, whereas in the public sector (government and higher education), the number remained unchanged due to a decrease in the government sector. Since 2011 the business sector has accounted for over half of all researchers (2016: 55.3%), which is a positive step towards enhancing the innovation capability of the economy. Such changes in

²⁷ In 1980–2005 green patents accounted for about 5% of all patented inventions globally; by 2015 their share had risen to 10% (Haščič and Migotto, 2015).

²⁸ In 2017 the European Commission launched a new initiative for a more efficient and sustainable execution of public procurement that would simplify and accelerate procedures with the help of digital technology (Increasing the Impact of Public Investment Through Efficient and Professional Procurement, 2017).

²⁹ Expressed on a full-time equivalent basis. Unless stated otherwise, the figures include female and male researchers together.

³⁰ Researchers in medicine and agriculture included.

the structure of researchers are also characteristic for the most successful innovation-active Member States, although these countries at the same time increased the number of researchers in the public sector in 2006–2016. Considering the rapid growth in the number of new PhDs in 2010–2016³¹ and austerity measures which severely limited their employment prospects in the public sector, it is necessary to immediately involve staff with new know-how in the research and development process.

In Slovenia, as elsewhere in the EU, the number of patents has grown more slowly since the start of the crisis than the number of other forms of intellectual property protection. Slovenia's gap to the EU average has widened in patents and narrowed in Community designs, while in EU trademarks Slovenia achieved the EU average (see Indicator 1.18). The significance of different types of intellectual property protection (patents, trademarks and service trademarks, designs) has been gradually changing due to rapid technological advances which force companies to enter the market with new products and services as soon as possible. The attraction of patents has been additionally reduced by the dominant role of services, where trademarks and service trademarks are more widely used to protect intellectual property, in particular in the absence of a unitary European patent that would shorten procedures and reduce the cost of acquiring a patent for the entire EU through a single submission.

The innovation activity of Slovenian companies stagnated in 2010–2014. During that period³² large and medium-sized companies, in both manufacturing and services, achieved rates of innovation activities that were above the EU average. Small companies, on the other hand, are problematic, as fewer than 40% are innovation-active, a share that is even declining³³ (see Indicator 1.17). In Slovenia the gap in innovation activity between large and small companies is significantly wider than that in countries that are more successful at innovation, which may also be a consequence of the better instruments such countries have for the promotion of innovation activities in small companies. In such countries, small companies are also more likely to participate in the innovation processes of large companies, which can strengthen the innovation activity of both (e.g. partnerships in certain fields, clusters, competence centres, etc.). Moreover, investments in intangible capital in Slovenia, which accelerate the introduction of innovations, are significantly below the EU average.³⁴

Slovenia has been slow in coping with the challenges of digital transformation and the digital maturity of Slovenian companies is weak. In 2014–2017 Slovenia failed to improve on its rank of 17th on the Digital Economy and Society Index (DESI). Unbalanced development across the five main DESI areas (see Indicator 1.11) has been hampering synergies. Notable progress has been achieved in the use of cutting-edge technologies for the digitalisation of enterprise processes and moderate progress has been recorded in digital public services. Slovenia has stagnated in terms of human capital, connectivity and internet use. In some indicators of digitalisation that are not included in DESI, Slovenia ranks around 5th place in the OECD, for example in the industrial stock of robots over manufacturing value added and the share of large enterprises that use big data analysis.³⁵ On the other hand, there are shortcomings in particular in the share of ICT companies investing in R&D (with 13% in 2015, Slovenia is at the tail end of the EU rankings), low level or absence of digital skills in 40% of the workforce, and low share of investments in ICT (2015: 2% of GDP), which increases the risk of being left further behind. Fewer than 20% of companies are digitally mature and only around 40% develop digital potentials.³⁶ Key factors for improving the situation include appropriate understanding of digital transformation,³⁷ human resources, pace of experimentation with new solutions and an organisational structure that better accommodates digitalisation in corporate development strategies.³⁸

Promotion of cooperation between the research sphere and the business sector makes the innovation system more efficient only over the long term. In 2009–2014 Slovenia leveraged EU and national funds to co-finance cooperation between the business sector and public research institutions with the aim of increasing value added and improving wellbeing. The supported instruments (e.g. competence centres, centres of excellence and development centres) were co-funded for 3–4 years. This rendered it impossible to support the entire innovation process from first ideas to the marketing of new products, which takes more time. On the other hand, support for the training of young researchers has been conducted for longer and is yielding good results, though the funding of this instrument has been declining since 2011, reducing the potential to acquire know-how in areas of future technological and societal development. The financing of the Young Researcher programme, which accelerated the transfer of research achievements into industry and matched research more closely with industry needs, was also discontinued. In the 2014–2020 financial framework, the absorption of structural policy funds supporting research and innovation is contingent on

³¹ The total number of new PhDs in this period was 4,600, of which around 46% were in science and technology.

³² The latest available data.

³³ The survey on innovation activity using the OECD methodology (the Oslo Manual) excludes companies with fewer than 10 employees. Consequently, data on innovation activity include neither such companies nor start-ups, which are generally established because of innovations in high-tech solutions and business models.

³⁴ In 2016, they accounted for 28% of total investments, compared to the EU average of 38% (Science, Research and Innovation Performance of the EU 2018, 2018).

³⁵ OECD STI Scoreboard, 2017.

³⁶ The study was conducted on a sample of 213 large and medium-sized companies.

³⁷ This is not just about the introduction of new technologies but also involves efficient integration thereof in all business processes.

³⁸ Erjavec et al., 2018.

projects covering the priority areas of the Slovenian Smart Specialisation Strategy.³⁹ Based on the strategy, strategic research and innovation partnerships (SRIPs) were established in 2016 in nine priority areas⁴⁰ which could contribute to the strengthening of innovation capability and the efficiency of the innovation system in the future. SRIPs represent a new mechanism of long-term support for public–private partnerships in the creation of value chains and the organisation of integral support structures for research and innovation for the achievement of competitiveness at the international level.

³⁹ Slovenia's Smart Specialisation Strategy S4, 2015.

⁴⁰ Smart cities and communities; smart buildings and homes, including the wood chain; networks for the transition to a circular economy; sustainable food production; sustainable tourism; factories of the future; health–medicine; mobility; and development of materials as products. As an essential component, digitalisation is horizontally integrated into all SRIPs.